Natural Language Processing is a way for computers to analyze and comprehend language in the way humans naturally use it. A good way to do that is Artificial Intelligence which can recognize patterns of meaning within natural language. Natural language understanding is easier and more common than generation because a lot of structures (ex: stopwords) can be ignored in understanding while in generation they may have to be used to reinforce meaning to humans.

A good example of common Natural Language Processing in action is Siri, a virtual assistant for Apple which can understand and serve spoken requests. Amazon has also released Alexa which can be used along with other smart devices to allow spoken commands to, for example, turn on the lights. There is also AI dungeon which generates adventures based off user inputs much like a text-based adventure game.

There are three types of Natural Language Processing. Rules-based, statistical and probabilistic, and deep learning. Rules based is the most basic form invented in the 1980s. While being relatively cheap to program, it doesn't match the complexity of the human language. However, it does have its uses in spell checking. It can also be surprisingly powerful when used smartly, like Eliza, a rules-based chatbot that tricked many into thinking it was human by repeating its prompts back to me.

Statistical and Probabilistic Natural Language Processing on the other hand depends on data collected from a variety of sources to see how a language probably will continue. Unfortunately, this takes a while longer and is data heavy. It uses traditional machine learning algorithms to form itself. An example of this is early-day Siri.

Deep Learning Natural Language Processing on the other hand uses more complex machine learning processing. It is way more powerful than either of the other two, however it is even worse in terms of data needed. An additional problem is the hype over projects like ChatGPT which may overestimate the power of these programs. For example, the CEO of ChatGPT stated that the program was a General AI (An AI good for general tasks) when it was in fact not.

My interest in NLP is a combination of my interests in Computer science and writing. I feel like this course will help me learn to deconstruct what language is so I can reconstruct it in my writing or in a program I'm making. In a professional context, I could use this information to create better prompt based AI assistants that help users handle documentation about a service they are using, in other words, AI help-desks.